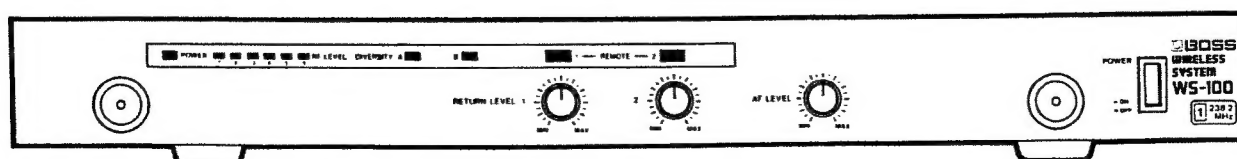
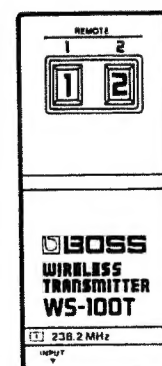




**WIRELESS SYSTEM**

# WS-100

**Owner's Manual**



Thank you for purchasing the BOSS Wireless System WS-100.

To make the best use of the WS-100, please read this owner's manual carefully.

## FEATURES

- ☆ The Wireless System WS-100 can be used with any type of electric musical instrument and device.
- ☆ The WS-100 adopts the realtime diversity reception system, allowing stable signal reception without dead point.
- ☆ The WS-100 uses frequency of over 200MHz, greatly reducing electric wave interference.
- ☆ Provided with two sets of Send and Return jacks, the WS-100 allows you to turn on or off the connected effect unit from the transmitter unit.

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## ■ IMPORTANT NOTES

### POWER SUPPLY

- The appropriate power supply for this unit is shown on its name plate. Please make sure that the line voltage in your country meets the requirement.
- Do not use the same socket used for any noise generating device(such as a motor or variable lighting system) or large power consuming device.
- Make sure that the unit is switched off before connecting the power cable to the socket.
- When disconnecting the power plug from the socket, do not pull the cord but hold the plug to avoid damaging the cord.
- If the unit is not to be used for a long period of time, unplug the power cable from the socket.
- It is normal for this unit to become hot while being operated.
- The BOSS alkaline battery will last for about 20 hours.(This varies depending on how you use the unit.) If the battery voltage drops, various symptoms are shown, such the Check indicator remains lit, the wave range is decreased, the sound is distorted, etc. To prevent that, replace the battery immediately.
- When the unit is not to be used for a long period of time, remove the battery to prevent battery leakage.
- Make sure that the polarity(+/-) of the battery is correct.
- Before connecting this unit with other devices, switch this unit and all the other units off.

### LOCATION

- Avoid using this unit in the following conditions:

in excessive heat (where it may be affected by direct sunlight, near a heater, mounting on a heat generating

unit, etc) in excessive humidity where it may be affected by dust places subject to high vibration.

- Operating this unit near a neon, fluorescent lamp, TV or CRT display may cause noise interference or malfunction. If so, change the angle or position of the unit.
- Operating this unit near a TV or radio may cause picture trouble to the TV and noise to the radio. If this happens, move the unit away from the TV or radio.
- Placing a unit with a large size transformer, such as a power amplifier, right above this unit may cause hum.
- Do not leave this unit in excessive heat for a long time. The shape of the cabinet may change.

### CLEANING

- For cleaning the unit, use a dry and soft cloth.
- Should the casing becomes dirty, use a cloth slightly dampened with water.
- To remove grime, clean the casing with a cloth moistened with a neutral detergent, when wipe it dry with a soft cloth.
- Do not use solvents such as paint thinner or alcohol for cleaning.

### OTHERS

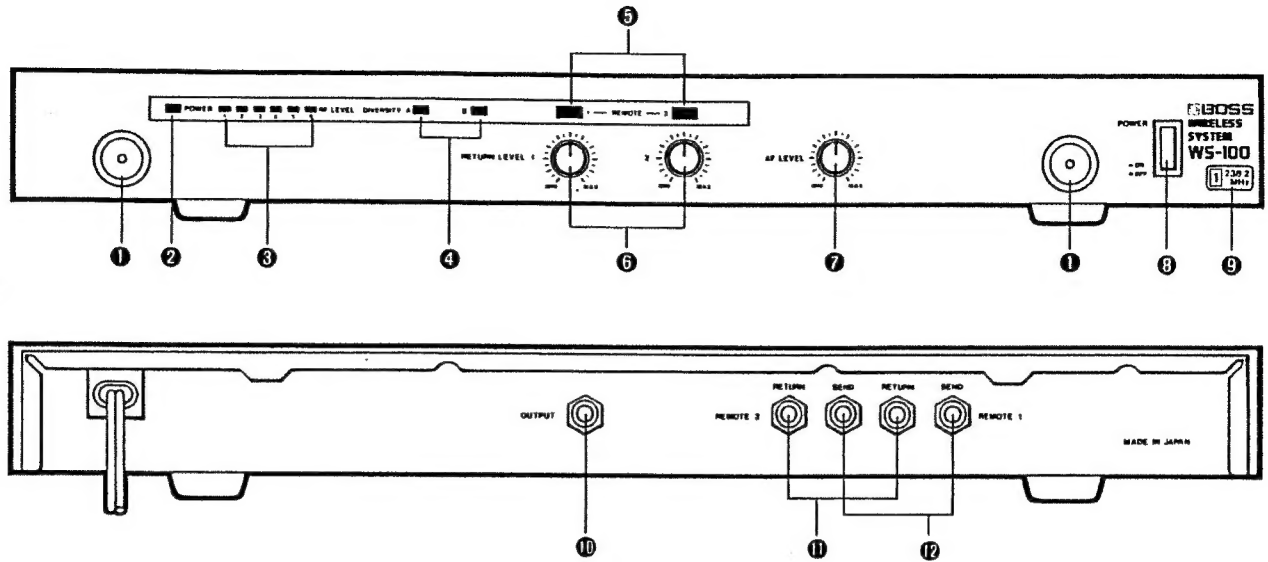
- Do not let any liquid or solid substance into the unit.
  - Do not give a strong shock to the unit.
  - Do not touch inside the unit to avoid electric shock and breakdown.
  - If the unit does not function properly, immediately switch it off, then call the shop or local Roland service center.
- \*To use the Wireless System WS-100, no application for qualification or permit is required.

## 1 OUTLINE OF THE DIVERSITY SYSTEM

If the signals from the wireless transmitter are received by only one receiver, noise or sound drop may occur by moving the positions of the transmitter. This is because electric waves reflect the wall or ceiling and therefore interfere each other, causing the dead point where the level is very low. This could be resolved by moving the receiver to the place where the interference does not occur, but it is not possible in practice. The alternative is placing two receivers in different positions and use the one which gives higher receiving level. In this way, the noise or sound drop by interference can be reduced. The diversity system, based on this idea, provides two receivers in a case, automatically switching the outputs depending on the receiving level.

## 2 PANEL DESCRIPTION

### <RECEIVER>



#### ① Antenna Connectors A, B

Connect the supplied antenna to these connectors. Set up the antenna vertically when using the unit.

#### ② Power Indicator

This lights up when the unit is switched on, showing that the unit is ready to be operated.

#### ③ RF Level Indicators

One of the 6 indicators is lit to show the level of the receiving waves. When it is lit in green, the receiving condition is good.

#### ④ Diversity Indicators A, B

One of these (A or B) is lit to showing the receiver currently in use.

#### ⑤ Remote Indicators 1, 2

These indicators light up respectively when the Remote Switches are turned on. (See page 10.)

#### ⑥ Return Level Controls 1, 2

These knobs respectively control the return level of the Remote Switches. (See page 11.)

#### ⑦ AF Level Control

This knob adjusts the output level.

#### ⑧ Power Switch

\*To switch on or off the unit, set the volume of the amplifier or mixer to its minimum.

#### ⑨ Receive Channel Label

This shows the receiving channel and frequency.

#### ⑩ Output Jack

Through this jack, the received signals are output.

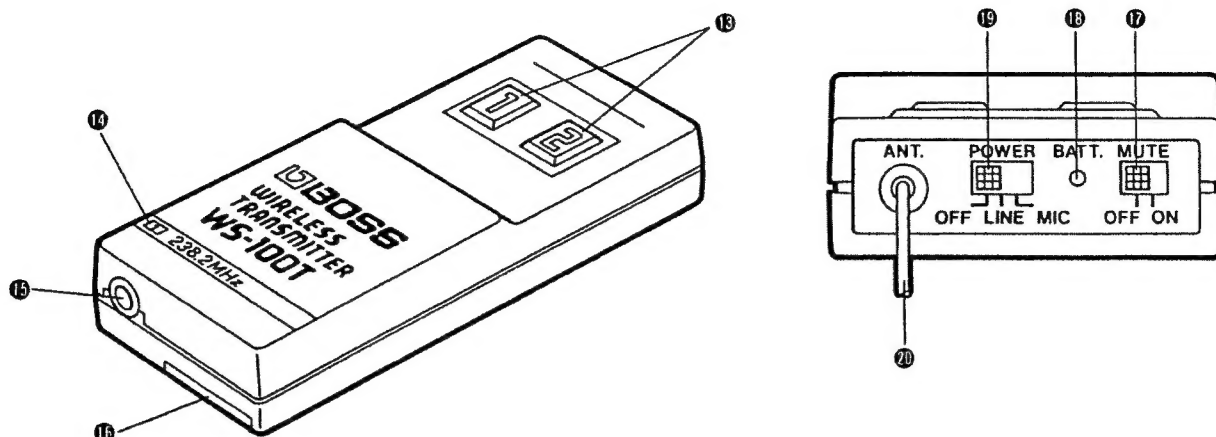
#### ⑪ Remote Return Jacks 1, 2

Through these jacks, the signals from external devices such as the effect units are input. (See page 7.)

#### ⑫ Remote Send Jacks 1, 2

Through these jacks, the received signals are sent to the external devices such as the effect units. (See page 7.)

# <TRANSMITTER>



## ⑬ Remote Switches 1, 2

These are used to set the on/off of the Remote state.(See page 10.)

\*The Remote state of the two units cannot be changed at the same time.  
Also, if you press a Remote Switch quickly, the Remote state may not change.

## ⑭ Transmit Channel Label

This shows the transmit channel and frequency.

\*There are 4 types of wireless systems with different channel numbers(see the table below). Make sure that the transmitter and the receiver have the same channel number.

Channel Number	Frequency
1	169.445MHz
2	170.245MHz
3	<del>171.045MHz</del>
4	171.905MHz

171.105MHz

## ⑮ Input jack

Connect an electric guitar or microphone to this jack.

## ⑯ Battery Cover

This is the cover of the battery box.

## ⑰ Mute Switch

When this is set to the ON position, the sound of the unit connected to the Input Jack is muted, therefore no sound is generated. It may be useful for preventing noise in changing connections of musical instruments or microphones.

## ⑱ Battery Indicator

This is a battery check indicator for the transmitter.(See page 11.)

## ⑲ Power Switch(Input Level Selector Switch)

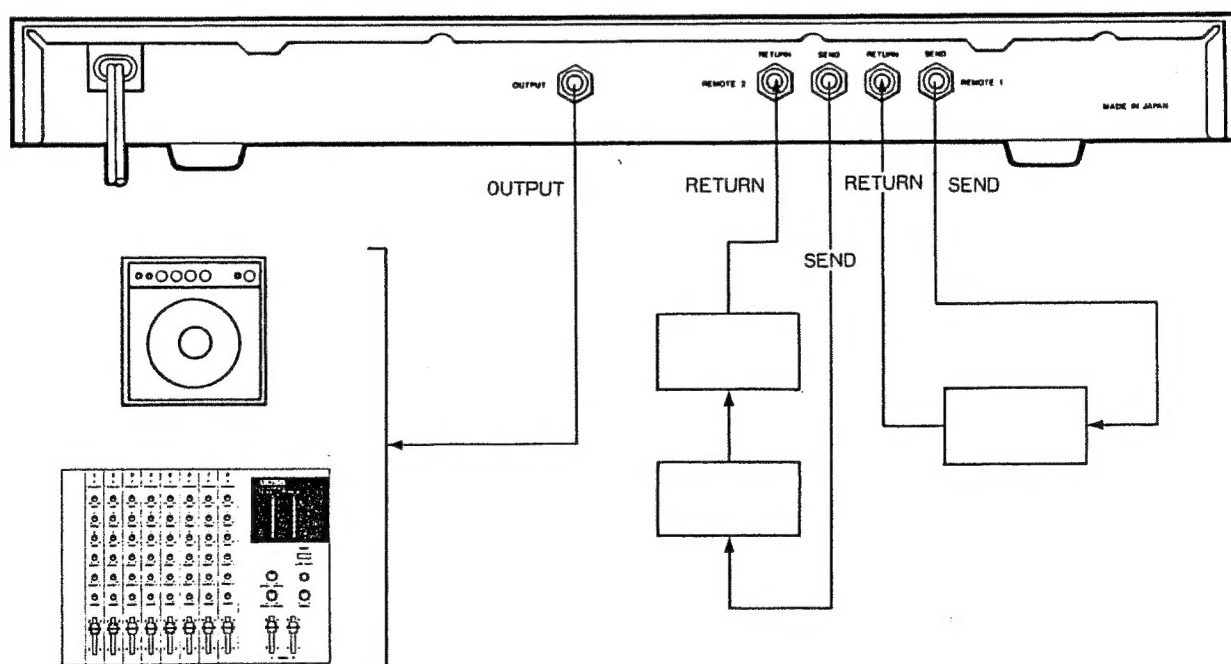
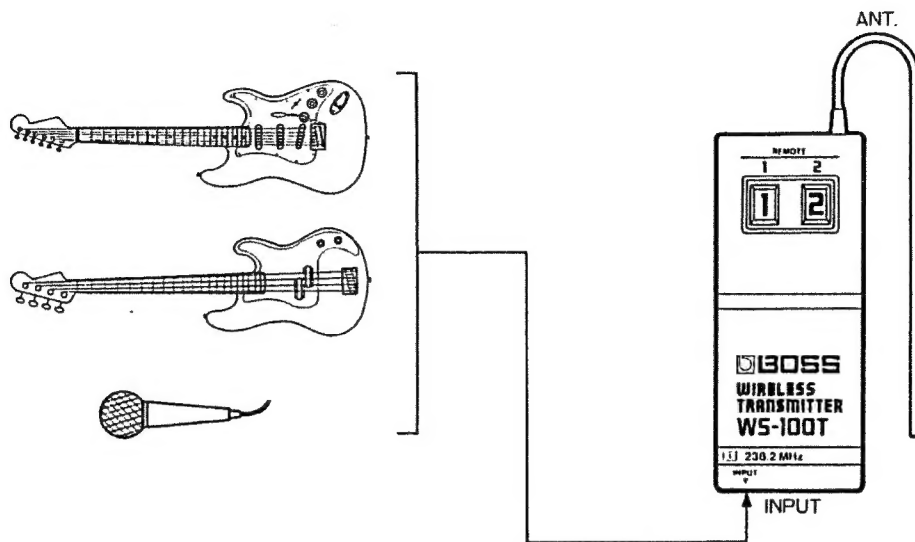
Setting this to the "LINE" or "MIC" position switches the transmitter on.(See page 8.)

## ⑳ Transmit Antenna

This is the antenna for transmitting signals. Pull it vertically when using the unit.

## CONNECTIONS AND INSTALLATION

### 1. Connections

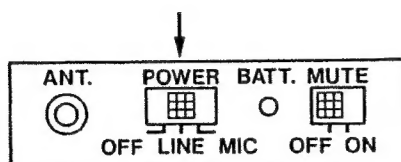


\*When plugging or unplugging a connection cord, be sure that all the units are turned off.

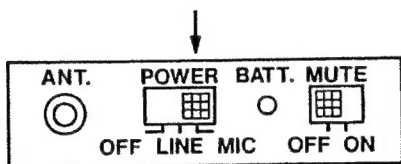
### [Switching the Input Levels]

Change the positions of the Input Level Selector Switch(Power Switch) on the transmitter depending on the output level of the connected device.

When connecting an electric guitar or bass guitar

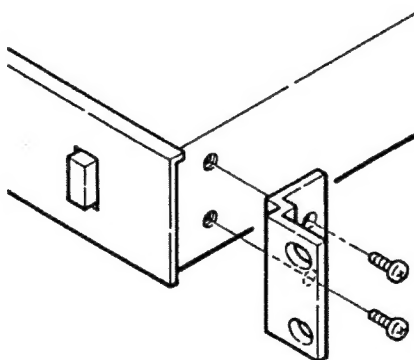


When connecting a microphone



### 2. Attaching the Angles

To set up this unit in a rack system, remove the screws on the both sides(2 for each) and the rubber feet(4), then attach the supplied angles as shown below.





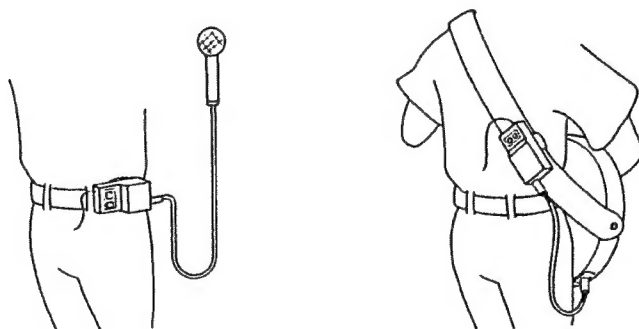
### 3. Notes on Connections

#### [Receiver Setup]

- When using the receiver, set up the antenna vertically.
- Keep the receiver as far away as possible from the floor or wall (to prevent dead point caused by reflected waves).
- Position the receiver so that you can always see it wherever you move during performance.
- Set the receiver so that a green RF Level Indicator (3 to 6) is always lit. If a red indicator (1, 2) only is lit, electric waves are getting weaker, causing noise or sound drop.
- Using the receiver near a digital effect, computer or lighting system may cause noise. Keep it away from such devices. Noise may also be caused by the power jack. If so, use a different jack.

#### [Transmitter Setup]

- Be sure to stretch the antenna vertically. If it is bent, electric waves will be attenuated at the antenna, making it impossible to benefit the functions of the WS-100 completely.
- If the transmitter and receiver are positioned far away from each other, the signals from the instrument will reach but the Remote Switch may not be turned on or off securely. For stable action of the Remote Switch, operate it at the nearest possible position from the receiver.
- Place the transmitter in the supplied soft case, then attach it to the guitar's strap or the belt. Be careful not to give strong pressure to the transmitter.



## ④ OPERATION

### 1. Procedure

① When you have made all the necessary connections, set the Power Switch on the receiver to the "ON" position, and the Power Switch(Input Level Selector Switch) on the transmitter to the "LINE" or "MIC" position.

\*When switching on or off the receiver, be sure to set the volume of the amplifier or mixer to the minimum. When switching on or off the transmitter, set the AF Level Control on the receiver to the minimum level(MIN).

② Adjust the output level with the AF Level Control.



\*When the Power Switch(Input Level Selector Switch) on the transmitter is set to the "LINE" position, the output level is equal to when the AF Level Control is set to the center position and the instrument is directly connected with a connection cord(at Remote OFF state:see the following section).

### 2. How to use the Remote Switches

The Remote Switches on the transmitter can connect or cut(ON/OFF of the Remote state) of the respective external devices(e.g. effect units).

Remote Switch 1 controls the Remote ON/OFF state of the device connected between Send Jack 1 and Return Jack 1, while Remote Switch 2 controls the Remote state of the device connected between Send Jack 2 and Return Jack 2.

(When the Remote is ON, the corresponding Remote Indicator will light up.)

\*The Remote state(ON/OFF) of the two devices cannot be changed at the same time. Also, if the switch is pressed too quickly, the Remote state may not be changed.

\*If the Remote Switch is pressed during performance, click noise may be heard, but there is nothing to worry about it. If the switch is pressed when a high level sound is being input, the switch may not work securely.

\*The units for Remote are connected in series of 1 and 2.

### [Adjusting the Output Level at Remote ON]

① Adjust the output level(the input level to the Return Jack) at Remote On for each device respectively, using the relevant control on the device and the Return Level Control knob(1 or 2).



\*When the Return Level Control is set to the center position, the output level is equal to that from the Send Jack(varying depending on the level setting on the external device).

\*Even when no external device is used, the Return Level Control knob is activated by turning the Remote on, and therefore can be used as a Preset Volume.

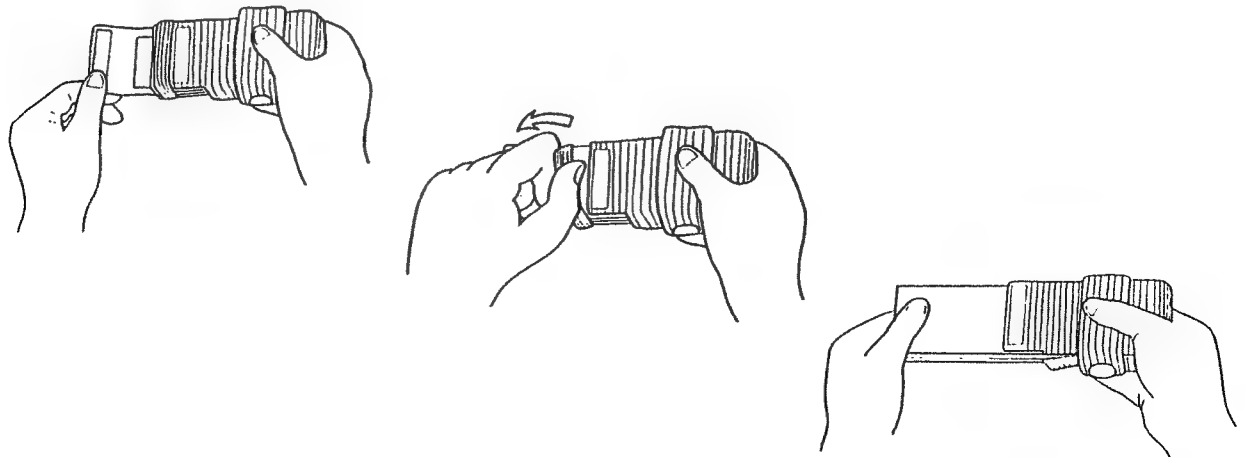
### 3. Battery Replacement

#### [When to replace the battery]

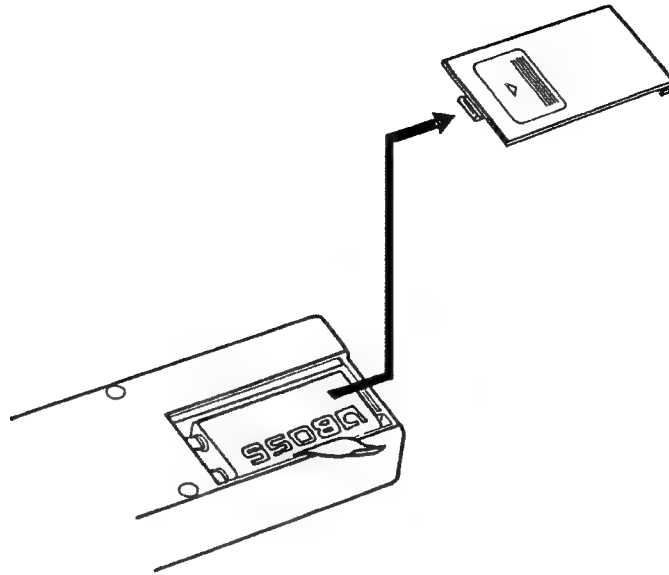
Normally, the Battery Indicator flashes once when the transmitter is switched on(the Power Switch is set to the LINE or MIC position). When the battery is getting flat, the Battery Indicator is lit constantly, and when the battery is completely exhausted, the indicator goes out. Please replace the battery when the indicator is lit constantly.

#### [How to replace the battery]

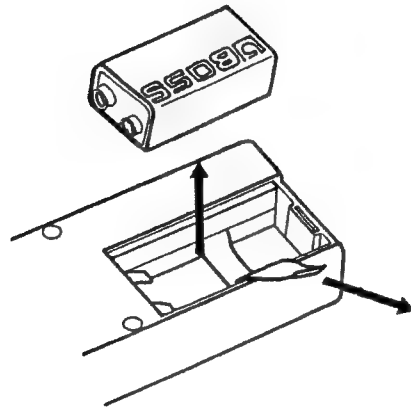
① Remove the transmitter from the soft case.



② Slide the battery cover to remove it.



③ Pull the ribbon to take out the battery.



④ Put a new battery on the ribbon.

\*Make sure the polarity(+/-) of the battery is correct.

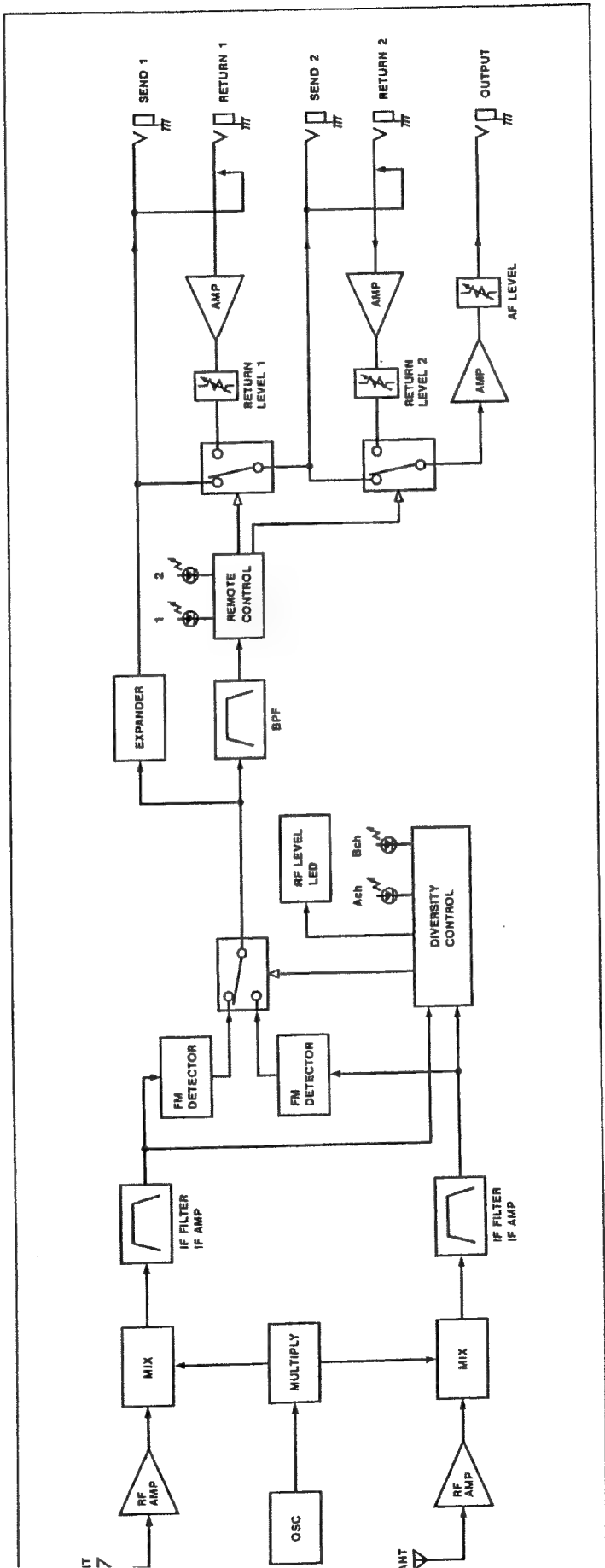
⑤ Slide the battery cover to replace it.

⑥ Replace the transmitter into the soft case.

#### 4. Notes on using the Wireless System

- It is not possible to use two or more Wireless Systems of the same channel number(frequency) at the same time.
- Avoid using the Wireless System near a radio station or airport.
- Be sure to use the receiver and transmitter together. Using it with another type wireless system will not allow proper operation even if it has the same frequency as the WS-100.
- When several Wireless Systems are used at the same time, interference may occur even if they all have different frequencies. To resolve this, move the receiver away.
- Use the supplied antenna for the transmitter without remodeling it. Using a remodeling or your original antenna may be punished by law.
- The Wireless System, because using high frequencies, may cause radio or TV interference. Please find the appropriate place to use it.
- If any radio station claims you of the electric wave interference, immediately stop using the Wireless System.

5 BLOCK DIAGRAM



## Ⓜ SPECIFICATIONS

### <General Characteristics>

Frequency Response : 20Hz to 10kHz(  $\pm 3$ dB)

Total Distortion Harmonics : Less than 2.0%(  $\pm 22.5$ kHz deviation)

Residual Noise : Less than -94dBm(IHF-A)

Transmission Boost : 0dB(LINE)

Operation Temperature Range : 0 to 40 °C

Accessories : Angle  $\times 2$ , Antenna  $\times 2$ , Soft Case

FCC compliance: type accepted under part 90 FCC requires licensing (Form 574) for non-governmental users.

### <TRANSMITTER>

Modulation : FM

Transmission Frequencies :

Channel 1 : 169.445MHz

Channel 2 : 170.245MHz

Channel 3 : 171.105MHz

Channel 4 : 171.905MHz

(One of these four frequencies is selected from the manufacturer)

Transmitter Type : Quartz

RF Power Output : Less than 50mW

Antenna : Flexible Antenna

Controls :

Power(Input Gain Control)

Mute

Remote  $\times 2$

Indicator : Battery

Input Jack : Standard Phone

Input Impedance :

1M  $\Omega$  (Line) / 10k  $\Omega$  (Mic)

Maximum Input Level :

0dBm(Line), -30dBm(Mic)/1kHz

Battery Life :

Continuous operation at 25 °C

More than 8hours(Regular battery)

More than 20hours(Alkaline battery)

Battery : 9V dry battery

Weight : 130g / 5 oz

(Including the battery, antenna and soft case)

Dimensions :

51(W)  $\times$  120(H)  $\times$  22(D) mm

2"  $\times$  4-3/4"  $\times$  7/8"

### <RECEIVER>

Modulation : FM

Reception Frequencies :

Channel 1 : 169.445MHz

Channel 2 : 170.245MHz

Channel 3 : 171.105MHz

Channel 4 : 171.905MHz

(One of these four frequencies is selected from the manufacturer)

Reception System : Space Diversity

Receiver Type :

Single Super Heterodyne

Frequency Oscillation : Quartz

Antennas : Whip Antenna  $\times 2$

Sensitivity :

10dB  $\mu$  V (S/N ratio: 60dB)

Reception Band Width :  $\pm 140$ kHz

Controls :

Power

Remote Level  $\times 2$

AF Level

Indicators :

Power

RF

Diversity  $\times 2$

Remote  $\times 2$

Output Impedance : 2k  $\Omega$

Jacks :

Send  $\times 2$

Return  $\times 2$

Output

Power Source : 117V AC, 50/60Hz

Power Consumption : 9W

Weight: 2.4 kg / 5lb 5oz

Dimensions :

436(W)  $\times$  49(H)  $\times$  216(D) mm

17-3/16"  $\times$  1-15/16"  $\times$  8-7/16"

(Including rubber feet)

\*Specifications are subject to change without notice.







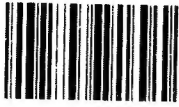
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